SCORPION

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Formal Proposal for:
Solicitation Number: 01 - 03 Natick BAA

Topic: D.12. Advanced Protection and
Integration Technologies and Systems
[Scorpion]

Submitted to Natick Soldier Center
~~=~~ MAY 11, 2001~~
By
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original proposal

(1) Part I - Technical Section:

Offeror is responsible for including sufficient details, without reference to cost/price, to permit a complete and accurate evaluation of the proposal from a strictly technical standpoint. The following information shall be included:

(a) Specific BAA topic area by number and title which the proposal is being submitted under.

Solicitation Number: **"01 - 03 Natick BAA"**

Topic: **D.12. Advanced Protection and Integration Technologies and Systems ["Scorpion"]**

(b) A summary of the objective/purpose of proposed research—what scientific "problem" do you intend to resolve, advance the state-of-the-art with respect to, or increase the understanding of.

Our objective is to greatly enhance the soldier's ability to fight and survive in the combat environment.

To meet this objective, we propose to design a revolutionary combat ensemble that integrates current, emerging, and cutting-edge technologies projected for use by 2010.

We plan to develop this system by:

- Designing, prototyping, and testing new systems through highly innovative methods and techniques
- Predicting, locating, and developing, as well as designing for "horizon technologies" projected for use by 2010
- Optimizing the integration of emerging technological advances
- Advancing the integration of existing technologies and features
- Specifying and/or creating needed technologies

Each tactical ensemble we design will be made up of an integrated system of garments, armor, and equipment. Our goal will be to provide optimized systems of highly integrated elements that reduce the soldier's physical and psychological burden and increase his performance without sacrificing system adaptability. We intend to design systems that will provide a marked increase in **individual and group** combat effectiveness by integrating the following functions into each system:

1. **Prevention**
   We will:

- Incorporate revolutionary detection-preventing features into the systems using novel methods for effectively disguising visible, near-infrared, short-wave infrared, and thermal infrared signatures in jungle, urban and multi-terrain environments
- Provide novel ways to reduce the soldier's physical and mental burden by incorporating features that aid in preventing joint stress, heat stress, confusion, and injury
- Investigate new methods for preventing fratricide

2. **Protection**
We will:

- Introduce and incorporate novel and lightweight methods for protecting individual soldiers from projectiles
- Provide C/B protection that is more rapidly deployed
- Integrate various impact, abrasion, and flame protection features directly into the garments and equipment
- Design all aspects of the system for optimum protection from the elements

3. **Provision**
We will:

- Introduce unique and effective methods for carrying, accessing, and using hydration, nourishment, tools, weapons, and other gear.
- Solve many problems associated with providing for the warfighter's basic needs in the combat environment, such as equipment maintenance; cleaning and waste management during C/B and non C/B situations.
- Create a system that provides the warfighter with more useful sensory feedback.
- Create a system that provides simple and intuitive interfaces and actions.
- Create a framework that provides for the easy integration of future upgrades and advancements in specific technologies.

In Phase I, we will focus on concept research and system-level design.
In Phase II, we will concentrate on iterative design, development and testing.
In Phase III, we will focus primarily on fabrication and testing. Each phase will have multiple prototype and documentation deliverables. For a more detailed view of our approach throughout the three phases, please see Section I: F.

(c) Identification of product(s) or process(es) which you anticipate will result from this effort. Product(s) may simply be technical data, reports on the feasibility of novel concepts, product samples, etc. Also address any MANPRINT requirements or state that no such requirements exist.

We anticipate generating the following:

- **Discrete developments, inventions, and features**
- **Documentation /visualization materials which record and organize these developments**
- **Physical prototypes and models which accurately demonstrate our designs**

Discrete developments, inventions, and features
We foresee creating new devices and materials formats for Scorpion, such as special boot closures or potential applications for conductive polymers. We intend to investigate and incorporate as many promising concepts as possible within the allotted timeframe. It is very likely that our efforts will generate new technologies that have applications beyond the military. (Please see Section I: D for commercial applications.)

Crye Associates has already designed solutions for many issues that pertain to Scorpion. These are not finished products, but rather concepts and plans that we have been working on to address needs we perceived in other markets. We intend to investigate the use of these designs for Scorpion, and, if relevant, we offer them freely to the Scorpion effort. We will not ask that Scorpion pay to use these technologies. Our stipulations are simply that once disclosed, our existing inventions can be used only by NSC and Crye Associates, and that if any of these designs are incorporated into items destined for volume manufacture, we are to receive a reasonable royalty or licensing fee on the manufacture thereof. This clause pertains only to

technologies we have already invented. We will provide the government full access to any new technologies we create once under contract.

We have already created innovative methods and devices for:

- Providing more universal sizing of certain gear such as vests and armor (reducing the need to make many different sizes)
- Allowing versatile, intuitive, and modular layering /securing of garments and equipment
- Defeating projectiles with light-weight materials
- Integrating various protective features into garments in a modular and ergonomic fashion
- Better integrating electronic components into the gear ensemble
- Allowing rapid donning/doffing of personal gear
- Concealing soldiers from enemy detection
- Simulating tactical situations for training/testing purposes
- Managing and disposing of waste during C/B situations
- Providing lightweight, low-power cooling methods

We would be pleased to elaborate further on any of these technologies.

Documentation / visualization materials

Throughout the process of designing these tactical ensembles, we will be compiling a market survey of existing and emerging systems and products that are related to Scorpion's aims. We will also be compiling and documenting our design methodology, our progress, our discoveries, user surveys, test data, research data, etc.

Documentation would be presented per phase or on an as-needed basis in the form of an indexed catalogue we call a "Plan Book." If desired, this documentation could also be made continuously available via an online platform, provided that this would not present a security risk. Please see Section 1:J deliverables for more specific descriptions of our documentation.

Visualization materials are integral to our process. As a design company, we are routinely asked to help others envision products and concepts that do not yet exist. To do this we usually create illustrations, models, and analytical prototypes that accurately communicate the proposed concept to all interested parties.

Heavy use of visualization aids is a technique we have refined to allow our development efforts to retain maximum momentum and forward direction, while insuring quality. It has been our experience that clear illustrations and simple models save weeks of unnecessary work and meetings, by allowing developed concepts to be examined, debated, and edited by a group of experts, before the concepts are invested in. (without the time-costs of producing elaborate prototypes early in the process.) This process allows us to edit down to the best ideas, quicker and with less wasted energy.
It sounds odd, but it is common practice in many companies to simply pursue the concepts that have the most effort already invested in them, even if this effort may be a direct result of the concept's inherent flaws.

We plan to produce and use extensive visualization materials throughout each phase of Scorpion, and will furnish NSC with these materials as needed and/or desired.

(For a more specific catalogue of products we intend to provide see deliverables at Section 1:J)

Physical prototypes and models

At Crye Associates, prototypes are not something we begin building after we are finished designing. They are an integral part of the design process, and begin to be produced in a rudimentary form as soon as an idea is generated. The production of Phase I field-testable (deliverable) prototypes does not officially begin until after the concept designs are complete, but rough mocks ups of different concepts for proofing purposes takes place much earlier. These mockups are a crucial part of our concept generation process.

Phase I prototypes will focus on demonstrating system-level design concepts. Usability will be given preference over cosmetic refinement. All of Scorpions major objectives will be addressed by Phase I prototypes. Issues of modularity/integration, core functionality, heat stress mitigation, accessibility, durability, weight reduction and more will be addressed and demonstrated.

Phase II prototypes will focus on iterative design and testing. Everything learned in Phase I will be used to advance the designs of Phase II. All of Scorpions major objectives will be advanced by Phase II prototypes. Phase II prototypes will present refined components, materials, construction methods, and details—providing more visually accurate representations, and advancing demonstrated functionality. Prototypes should be "wears-like, weighs-like. "

Phase III prototypes will represent, with as much accuracy and realism as possible, the actual production systems we are proposing. Mechanically, the prototypes should be very similar in function to a fieldable system, and should be made of materials that simulate the predicted weight, feel, breathability, color, pattern, and thermal/IR properties. These prototypes will most likely lack optimized ballistic material, but will match their weight and form factor. The prototypes will contain digital and electronic components that are predicted, and therefore not fully functional. These components will be demonstrated by designing and simulating their predictable and desirable attributes: their form factors, interface methodologies, handling precautions, and support systems management (power, data busses, expansion means, etc.). Prototypes should be presentation-grade "wears-like, weighs-like. "

MANPRINT, system safety, and Human Factors requirements

MANPRINT

We plan to work closely with MANPRINT guidelines to appropriately address each MANPRINT area, with special emphasis on advancing Human Factors engineering for the soldier, advancing and increasing soldier survivability, and building in ease-of-use and simplified maintenance to reduce training and logistics burdens. Manpower and personnel issues will also be addressed and appropriately designed for. We are eager to investigate and work with this system because it seems closely related to our own design methods.

System safety

Our team will consider any potential compromise to user safety with each new design innovation, and will conduct an ongoing risk assessment program as a central part of the design process. All designs will be continually assessed against MANPRINT guidelines throughout the development process to ensure that the designs are safe for a soldier or civilian to operate, maintain, repair, and support.

Our design team's full and expressed intention to personally test the units in the field will necessarily maximize our attentiveness to issues of user health and safety.

Human Factors

The entire Scorpion program is a Human Factors-based effort. No aspect of Scorpion can be considered independently from its impact or influence on the user. In the commercial sector, there

is absolutely no distinction between a well-designed product and a successful, well-liked product. Not considering Human Factors as an integral element of every design decision ensures certain death in the marketplace. We bring a Human Factors-driven approach to Scorpion because our entire process is based on "designing for use. "

(d) Identification of any potential military and/or civilian applications of the product(s) which may be developed if the work performed under the proposed BAA contract is followed through on, following completion of the proposed contract.

Since certain commercial markets share similar performance requirements with military markets, we foresee several areas where commercially viable products could be developed from Scorpion innovations. We have already invented several technologies, which may be employed as part of Scorpion, that could also be marketed commercially.

Potential markets include rugged outdoor/camping equipment, harsh environment garments, personal armor, construction gear, and law enforcement/security products.

- The use of new and novel closures and couplers, as well as uniform/load carriage innovations, may have applications in the civilian outdoors and sporting goods markets
- New and novel ballistic armor designs and concepts may have applications in the civilian law enforcement and private security markets
- New and novel designs for durable chemical/biological protection equipment may have applications in chemical production environments, and for civilian and government based chemical/biological response personnel

(e) An assessment of the probability for project success.

Challenges and Solutions
Scorpion has a very accelerated and ambitious directive, which Crye Associates will approach as an opportunity to aggressively pursue innovation.

Time is the primary constraint we will face, and is the factor most likely to limit the scope of investigation and innovation. However, we have previously produced real innovation under even more severe time constraints. We plan to be realistic with our use of the allotted time by pursuing Scorpion's goals in a very aggressive and organized manner. We will allocate our time and resources towards reducing risk and increasing probability of significant advancements.

To provide the warfighter with significant advancements, we will pursue emerging innovations, existing technologies, and cutting-edge/untried solutions.

We will "freeze" our technological pursuits during the engineering portion of each phase to prevent "design creep," and to focus on implementing the concepts and technologies we have chosen. Although we will continue to seek new and novel technologies throughout the entire process, experience proves that we must establish a freezing point, so that the team is free to concentrate on implementing the chosen directions.

We are confident that we can provide revolutionary advances in many areas of interest to Scorpion, particularly in Human Factors engineering, physical design, and technology integration.

The following table shows potential risks for Scorpion:

Possible Concerns	Actions to minimize risk
User needs data is not comprehensive and accurate enough to adequately inform the product specifications.	Conduct 1st hand, extensive, innovative, and analytical use research. Augment with much traditional research data. (See Section 1: F for more process info)
Concepts are not feasible for the projected timeframe of Scorpion and Objective Force Warrior.	Pursue realistically ambitious goals. Use new tech to speed process, and advance functionality. (CAD, Rapid prototyping, new materials, etc.) Do not avoid using "old tech" where it is superior.
Concepts are not as aggressive and revolutionary as desired.	Define system requirements and concepts from actual use needs, not just available means. Consult tech. experts. Pursue as many promising tech. leads as possible.
The technology survey overlooks valuable developments.	Search for parallel but separated applications and products. (animals and hockey equipment may provide as valuable an insight as Titanium Matrix Composites and digital ink.)
The information channel from user, through designer, to final product, is not direct, rapid, or of high-quality.	Learn use environment well. Quickly secure links to manuals, reports, video footage and other data. Develop a visible and clear link between the project's goals and the work being done.
The team does not allocate its time and resources well enough to ensure timely and within-budget results.	Start project as early as possible. Pipeline critical tasks where appropriate to speed completion. Follow DSM* methodology and commit the entire team to a well documented, realistic, and organized approach.
Specific system features are favored by the team's concepts, compromising the utility of other important features and reducing the total utility of the system.	Design the entire tactical ensemble as a single unit with many cooperative sub-functions, rather than a list of cobbled-together features. Pursue solutions in a holistic manner. Hold subdivision off until the overall architecture is roughed-out.

*DSM (*Design Structure Matrix* is an information organization tool that assists the management of interdependent tasks. See attached appendix.)

Figure 00

(f) An explanation of the planned approach, techniques, and/or processes to be used in this effort.

Please see attached Project files for detailed execution strategy.

Basic approach

Our basic approach is to determine everything we can about how the products we are to design need to be used, and then design and engineer them around this information. We do this by focusing on solving the use requirements of our customers first, incorporating specific technologies on an as-needed basis. It is a "We need a material that performs X function" approach, as opposed to a "How can we use this material we already have?" approach. We focus on answering needs with technology, not simply finding applications for existing technologies. This is not to say that we do not find appropriate uses for existing technologies—every successful design team must do this—but we begin with user needs, working back to technology. If a technology that satisfies our needs exists, we will take advantage of it; if it doesn't, we will investigate the feasibility of altering one or developing a new one to suit our needs.

Techniques and processes

To design the best and most appropriate soldier equipment, the designers would ideally obtain first-hand, detailed experience of the system's actual use environments and requirements, before beginning design.

However, this is rarely feasible for any company, as most engineers and designers are usually unwilling, unable, or unmotivated to pursue such an approach. The Crye Associates core team consists of designers and engineers who are younger than most in the industry, and who are avid outdoorsmen. Compared to other companies, the ages and interests of our design personnel grant us the unique opportunity to gain a more accurate perspective on the needs of the soldiers we would be designing for.

Our ages and interests may also grant us the ability to be personally incorporated into actual training exercises, and certainly enable us to conduct field research and testing in conditions that closely approximate those experienced by all of Scorpion's projected users. These first-hand field exercises will greatly inform and influence system design. We desire to be as involved in actual exercises as possible throughout the design effort.

We "design for use. " To do so, we must learn everything we can about the people and situations we are designing for.

Our overall design process is simple, thorough, and adaptable. It can be broken down into the following three stages, which exactly parallel the three phases of Scorpion:

1. **Define** – Define the scope, approach, and measures of the task; generate potential solutions and define target functionality, architecture, and technologies
2. **Specify** – Specify and develop the functionality, features, architecture, details, and technologies of the chosen solutions
3. **Produce** – Produce refined solutions for production and detailed prototypes

The following three diagrams show the general tasks within each stage of our process. We then list in detail how each task relates specifically to Scorpion.

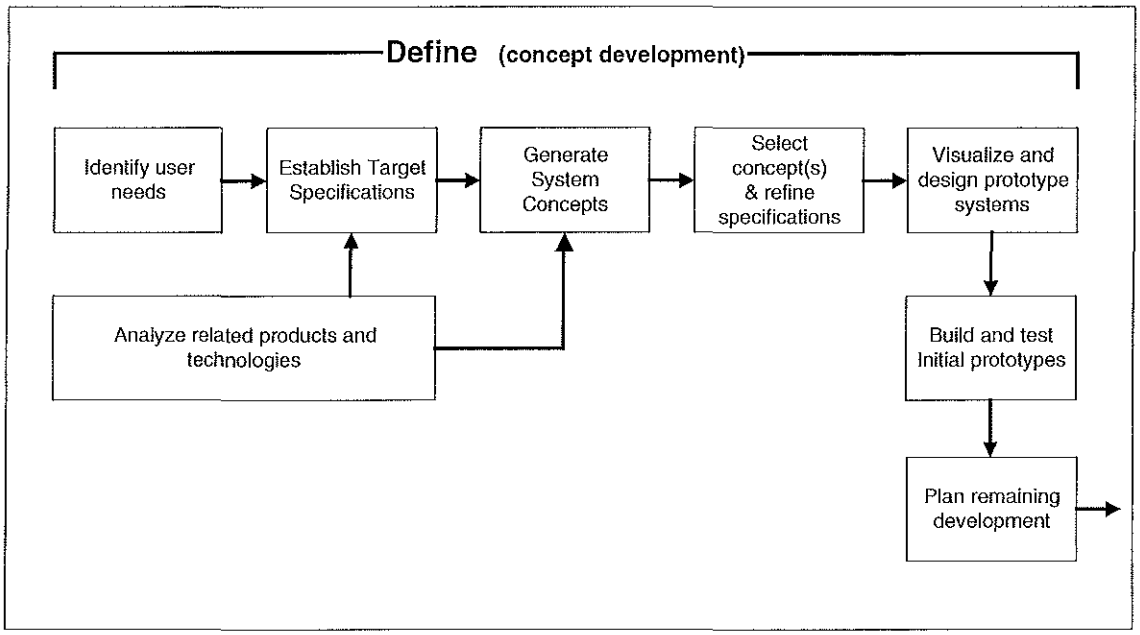


Figure 01

Define: Stage I
Our Define stage is primarily a concept development stage. It begins with user needs analysis and ends with detailed and quantified product specifications and initial mock-ups. Figure 01 describes its general function and process.

Scorpion: Phase I
Phase I of Scorpion is also a concept development and initial design effort. It aims to establish the fundamental and comprehensive system concepts and technologies. Phase I will be structured around the following objectives and tasks:

1. Identify user needs

- Define project scope and create Mission Statement
- Obtain and examine several sets of current baseline soldier systems and the commercial counterparts where available (e.g., military rain gear and commercial rain gear)
- Become as familiar as possible with the actual use environment of the soldier (psychological and physical) through many areas of research (first-hand experience, user interviews, training manuals/videos, documentary footage, reports, DARPA archives, field visits, expert advisors, studies of related industries and equipment, etc.)
- Prepare for and participate in an actual exercise(s)*; two people using standard issue gear and two using commercial gear. Experience as many of Scorpion's user-environments and use scenarios as possible
- Record, compile, and document in-field experiences (in conjunction with all other research) to create the most accurate and honest user-requirements data available

* We desire for members of our team to be included in actual military training exercises. We also intend to field-simulate the tasks and environments of Scorpion's projected users

2. Establish target specifications

- Based on experience and extensive research create comprehensive user needs list
- Investigate related products and systems
- Ensure that MANPRINT requirements are being addressed
- Map each identified need to a metric and a target value. (For example, if a need is "c/b protection is employed very fast, " the metric could be "time to deploy," and the target value could be "less than 10 seconds. " Producing a graphical matrix of this type of information allows informed design decisions to be made very quickly.)
- Compile and organize the specifications

3. Generate system concepts

- Envision several systems-level approaches to meet the target specifications defined in step 2
- Rapidly make detailed concept sketches/models and drawings of these approaches
- Review and update market survey

4. Select system concepts to further develop and refine specifications

- Make rating diagrams to compare and edit concepts
- Choose most promising concepts and refine selection by making detailed scoring diagrams of each
- Make final decisions on which directions to pursue
- Refine specifications based on chosen concepts

5. Visualize and design prototype systems

- Engineer most promising concepts into 2-3 usable systems
- Create simple mockups and test fixtures
- Create collateral materials to illustrate concepts to others
- Initiate contact with potential technology vendors and begin working with them to specify the most appropriate materials, technologies, and components

6. Simultaneously prototype these 2-3 concepts and compare

- Determine specific goals of prototypes and document them
- Rapidly produce two substantial prototypes of each approach and return to field to compare them against previous experience
- Perform other use tests and analysis
- Compile and document results
- Refine mock-ups and prepare documentation to conclude Phase I

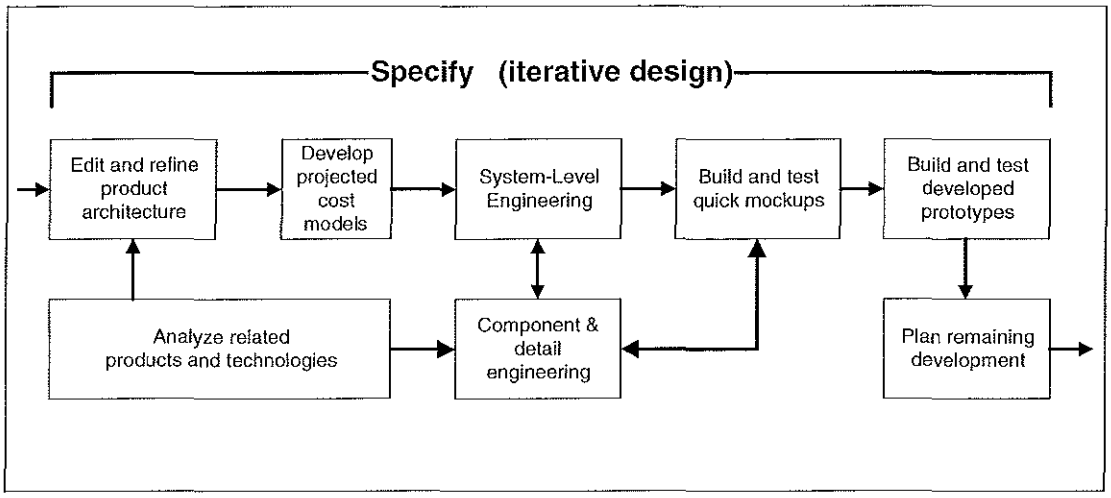


Figure 02

Specify: Stage II
The second stage of our process, Specify, involves iterative design and testing efforts concerned with specifying the attributes and technologies needed to meet the team's goals. It begins with a concept and a set of target specifications, and, through iterative design and testing, ends with several prototypes of thoroughly developed systems.

Scorpion: Stage II
Phase II of Scorpion is also an iterative design effort aimed at developing and refining the work that began in Phase I. At the end of Phase II, the team should be confident that it has produced systems that satisfy the project mission statement and which are ready to be transitioned to the next phase. Phase II will be structured around the following objectives and tasks:

1. Edit and refine product architecture
   - Investigate related products and systems
   - Optimize high-level component interactions

2. Develop projected cost models
   - Pursue further design with highly realistic cost constraints

3. Continue system-level design and engineering
   - Refine MANPRINT specific concerns (personnel, safety, training requirements, ...)
   - Optimize design for simplicity-of-use

4. Simultaneously develop component and detail designs

- Develop living Bill-of-Materials for each concept
- Increase ruggedization and simplicity
- Study construction of related products
- Specify, source, and/or create components and articles that are required but unavailable
- Integrate "live" (real) components as much as possible
    - Design with the actual predicted components where possible
    - Make mechanisms function as accurately as possible
    - If live components cannot be used, use representations that are as accurate as possible
- Advance previous work with vendors to specify most appropriate materials and components
    - Textile and coating vendors such as C & C Technologies, Dupont, Honeywell (Allied Signal), Toyobo, 3M, etc., to facilitate incorporating proper protective and anti-detection features into garment materials
    - Electronics and display researchers and manufacturers such as Kyocera, Xerox, Gyricon Media, and MIT Media Labs
    - Ceramic and metal processors and vendors such as MSE Materials, Olin, Pinnacle Armor, etc., to best determine armor materials and characteristics. Ammunition vendors will also be surveyed for information on new ballistic threats
    - Companies and universities researching nano technologies and new fibers developers such as Tulane, Umass, Nexia (synthetic Spider silk), Mitsubishi-Daimler (Titanium Matrix Composites), and Sandia National Labs for projections of near future capabilities
    - Garment and equipment fabricators and manufacturing vendors such as Arc'terix and Blackhawk to advise design issues relating to production and to potentially assist with Phase III fabrication

5. Make quick test-models and mockups. Test these and feed results back into the design

6. Build and field-test developed prototypes

7. Prep prototypes and prepare concluding reports to end phase II

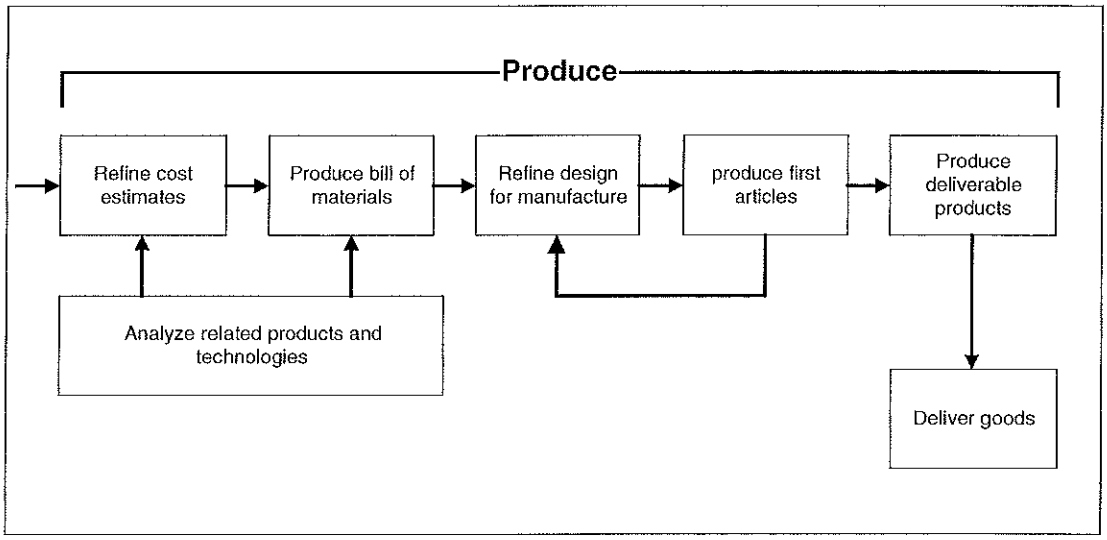


Figure 03

Produce: Stage III
Our Produce Stage transitions developed system concepts and prototypes into manufacturable goods. We concentrate on refining a single approach and achieving a highly refined results.

Scorpion: Phase III
In Phase III, we expect to work with NSC to choose a single direction to refine and produce. Although Scorpion's Phase III is not actually a high-volume manufacturing effort, fabricating and testing 12 finished systems that demonstrate the scope of the team's developments remains a very complex and difficult task. As a result, fabrication issues must be accurately predicted and designed for. Designing for fabrication ensures that Scorpion's gains are transferable to Objective Force Warrior and ultimately to the soldier. (In practice, we begin thinking and planning for production from the outset of the project—eliminating the need for a lot of re-work later on.) Phase III begins with developed system designs and transitions them into 12 refined and rugged examples of the chosen direction. This phase will include a great deal of field evaluation and documentation, and will be structured around the following objectives and tasks:

1. Refine cost estimates before proceeding

2. Continue to analyze related products and technologies

3. Refine design for manufacture
   - Finalize BOM

4. Produce first articles of "production" parts
   - Verify fit and function

5. Build 12 finished final prototypes
   - Refine materials
   - Test throughout process
   - Build backup parts and supplies

6. Help with and document squad-level field exercises

7. Prepare concluding reports and projections to end phase III

(g) Rationale for the proposed methodology.

The opportunity for a new approach
Scorpion may well represent the first instance in modern history that an entire tactical ensemble for the soldier is being designed from the ground up—taking advantage of new and emerging capabilities to create a system that is free from legacy-based hindrances and burdensome compromises.

The need for a new approach
Until now, soldier system designers were saddled with the task of creating innovative improvements in soldier gear, while still accommodating, and designing around, restrictive amounts of "old" gear. This approach usually ensures that systems will be heavier, less integrated, more complicated, and harder to use. (For example, if a helmet is designed to be compatible with legacy goggles, then any new goggles would, technically, be designed around a helmet that was designed around old goggles.) Because Scorpion represents such a new approach, it must be conceived, designed, and executed through innovative, system-wide methods.

Unprecedented use-driven plan
To accomplish Scorpion's directives, we believe it is imperative to focus on the system's actual use scenarios from the very beginning of the design process. In many design environments, use-driven design is often given short shrift, or left out until late in the development process. This oversight is unfortunate, since even the most high-tech equipment must be used (by people) on a daily basis.

Soldier systems, by nature, are user-driven products. If our goal is to make individual soldiers safer and more effective, our design directive must begin with the their specific needs.

Moreover, for a system that will have as many Human Factors considerations as Scorpion, physical format design is of the utmost importance. The standard method of designing technology-push products is not optimized for dealing with such bio-dynamic concerns. Many tech-teams assemble system **components** before the system **concepts** have even been created. Although this is sometimes a workable method, it leaves little room for true innovation.

The core benefit of a user-driven approach is that for a given level of technology, the use-driven approach will provide a product that is faster, simpler, and easier for a human to operate and interact with than that of a tech-driven approach.

Our method is to design the format and materials concepts first, assuming certain technological generalities and projections, and then seek out ideal technological solutions to the issues discovered while designing. This approach avoids much wasted time examining the minutiae of technologies that may or may not prove to be the optimal solution for a certain problem.

More importantly, we believe that designing the concept first, before selecting the specific technologies and materials, provides more and better opportunities to generate revolutionary gains.

(h1) What innovative ideas/techniques, if any, will be tried?

Scorpion's ultimate deliverable is innovation itself. Crye Associates' entire design process is built on speed and innovation.

Although many innovative ideas, methods, and techniques are described throughout the proposal, we would like to highlight a few examples here:

- Immersive, first-hand, user-needs research done in the field by the actual personnel who will design the systems
- Extensive use of methodologies and management tools developed at the MIT Center for Innovation in Product Development, such as the use of an agile, multi-disciplined core team; Design Structure Matrices; the pipelining of critical tasks; needs-metrics matrices, and more
- Creation of a user-driven system design, rather than a standard technology-push design
- Specific technical innovations too numerous to list here (including applications involving "digital ink," synthetic spider silk, nanomaterials, thermo voltaics, and more)
- To save time and preserve design intent throughout the process, we will take full advantage of rapid prototyping technologies and methods, both traditional and novel
- We will utilize many non-traditional sources for certain areas of our research
- Because Scorpion must successfully address numerous life and death issues, we will endeavor to avoid tradeoffs and compromises until all possible combinations and arrangements have been investigated—striving to design an optimized system, not a system of compromises. Certain tradeoffs are unavoidable. However, our approach creates a mindset that keeps us focused on finding novel and creative solutions that might otherwise go undiscovered

(h 2) Any planned interactions with NSC (to include a request for a post-award conference if the contractor so desires) required during the performance of proposed contract.

We appreciate the accessibility and helpfulness of NSC personnel throughout the process. We hope to retain this level of accessibility during the project. We also wish to have access to a specific contact who could help us obtain various reports, studies, and other research material from within the Army and Department of Defense.

Additionally, upon contract award, we would like the opportunity to interview representatives who spoke at the initial Scorpion briefing. We would like to sit down with as many of them as possible, and discuss their developments and concerns in greater detail. This could be done over 3-4 days, speaking to each person for 30min - 2 hours.

We would like to have several status meetings throughout each phase, which could happen at our facilities in New York City, or at NSC, or both.

Primarily, however, we would like the opportunity to visit NSC on occasion to ask questions or show some of our developments and get feedback.

When NSC testing facilities such as the climatic chamber and thermal mannequin are needed and available, we would like to be able to secure access to them through direct payment or by whatever protocol NSC determines.

(i) Any planned collaborative arrangements with other parties (including subcontractors) for the effort.

We plan to develop cooperative arrangements with appropriate vendors once the systems concepts and technological requirements have been established and are beginning to be investigated.

We are eager to involve as many vendor experts as necessary, on an advisory basis, as soon as we have designed Scorpion's basic concepts. Technology providers are important to help guide the design effort. But it is crucial that they help produce an **integrated** system, and not a system that is simply designed around incorporating their particular technology. That said, we look forward to working with technology providers. We always retain cooperative, friendly, and open relationships with our chosen vendors. In the later two phases of Scorpion, the external vendors will become much more involved as we narrow and refine our requirements.

We foresee working closely with textile manufacturers, pigment makers, ceramics engineers, fiber developers, testing facilities, electronic component producers, universities and research centers, and others. (Please see Section1:F, for a more complete listing of likely technology providers.)

(j) A list of the deliverables (technical data, processes, publications, samples, etc.) that will result from the effort plus demonstration of a clear pathway from the research to the intended deliverables.

Phase I

- Initial market survey of relevant products and technologies, including projections
- "Plan Book" containing:
  - User needs list
  - Concept generation
    - -Function diagrams
    - -Concept classification trees
    - -Concept combination tables
    - -Concept descriptions and drawings
  - Concept selection
    - -Concept screening matrices
    - -Concept scoring matrices
  - System specifications
    - -Needs-metrics matrices
    - -Competitive benchmarking charts
    - -Specifications lists
  - System level design
    - -Schematic diagrams
    - -Geometric layouts
  - Bill Of Materials (BOM)
  - Aesthetic requirement survey
  - Human factors and bio-dynamics analysis documentation
  - Project management
    - -Economic analysis
    - -Microsoft Project file with milestones, budget etc.
    - -System performance assessment plan
    - -Risk analysis
    - -Meeting minutes
- Initial mock up (wears like/weighs like) prototypes (2 each of 2-3 designs)
- Visualizations and illustrations of concepts (drawings, renderings, models)

Phase II

- Continuing and updated market survey of relevant products and technologies.
- Plan book (updated for phase II)
- Phase II prototypes. (More refined) (2-4)
- Visualizations and illustrations of updated concepts (drawings, renderings, models)

Phase III

- Continuing and updated market survey of relevant products and technologies.
- Plan book (updated and finalized for phase III)
- Phase III prototypes. (highly refined) (12)
- Visualizations and illustrations of updated concepts (drawings, renderings, models)
- Assistance and support for squad-level field exercises
- Documentation of production

(k) A schedule containing milestones for the performance of the proposed effort.

Please see the Project Files attachment.

(2) Part II - Management Section:

(a) Resumes (or some portion of such) of technical personnel detailing education, experience, and technical expertise proposed for this effort and the percentage of time expected to be devoted to this project.

Crye Associates Core Team

Name	Corporate Position	Role for Scorpion	Education/Expertise
[redacted]			

Figure 04

Extended Team

Name	Role/Expertise	Education / Experience
Fabrication		
[redacted]		
Engineering and Design		
[redacted]		
Technical consultants		
[redacted]		
Legal		
[redacted]		

[redacted]		
Other		
[redacted]		

Figure 05

(b) Organization of the offeror's firm.

Crye Associates is a company formed from people who have collaborated on many projects over the years. Though newly formed, Crye Associates represents broad collective experience.

After working together within other companies, a number of us decided to form a company that better suited the needs of our clients. Crye Associates was founded in May, 2000, on the principle that the best products and client relationships result from a small, dedicated team of designers and engineers who bring in additional expertise when necessary, on a project-by-project basis.

To optimize this structure, Crye Associates consists of two groups: a core team that does not change, and an extended team that functions as a resource pool. The core team is responsible for obtaining, managing, and executing projects, as well as allocating who from the extended team is best suited for a specific job. This structure allows cost-effective scalability appropriate to each project. The core team is made up of a mechanical engineer, an advisor, an electrical engineer, two designers, and a manager. This mix of skill sets encourages a focused and integrated approach to design.

(c) Facilities and equipment available for the proposed effort.

We have one main office in New York City for design and initial prototyping. Our facility is equipped with meeting space, design stations, and a small shop that includes industrial sewing equipment, model making tools, a milling machine, and various other prototyping tools.

We also share a larger shop in NYC for more detailed or specialized fabrication, equipped with molding and casting equipment, a lathe, a thermoforming machine, sheet metal equipment, and additional milling machines. We have purchased unlimited access to this facility for the next two years (through 2003).

Further, we have a cooperative arrangement with an optics and electronics laboratory (also in NYC), with full access to the facility and resident technical expertise. Our proximity to unique resources found only in NYC (Materials Connection, the Garment District, and numerous electronics suppliers for example) allows us to quickly research and acquire specialized materials and services in a hands-on manner—in a matter of hours.

Our location within the New York industrial base gives us access to skilled professionals such as pattern drafters, expert clothing fabricators, metals and plastics experts, and specialized materials dealers. We have a great deal of experience outsourcing the production of certain components to specialized producers within our area and other regions of the U.S.

Many Crye Associates team members are Alumni of Cooper Union. We retain a close working relationship with several Cooper departments and professors. These relationships not only benefit us through individual expertise and facilities access, but also provide opportunities for students to work on real-world projects when appropriate.

(d) Project management systems and controls to be utilized by the contractor.

We believe in structured and straight-forward project management. Our management techniques assist innovation rather than interfere with it. We are highly influenced by the methods of the MIT Center for Innovation in Product Development, and have developed and refined our own process through the use of many of their management tools and methodologies.

Our primary project control tool is the "Plan Book." This is our term for an indexed collection of all project-related data and documentation. The Plan Book includes:

- User needs list
- Concept generation
  - -Function diagrams
  - -Concept classification trees
  - -Concept combination tables
  - -Concept descriptions and drawings
- Concept selection
  - -Concept screening matrices
  - -Concept scoring matrices
- System specifications
  - -Needs-metrics matrices
  - -Competitive benchmarking charts
  - -Specifications lists
- System level design
  - -Schematic diagrams
  - -Geometric layouts
- Bill Of Materials (BOM)
- Aesthetic requirement survey
- Human factors and bio-dynamics analysis documentation
- Project management
  - -Economic analysis
  - -Microsoft Project file with milestones, budget etc.
  - -System performance assessment plan
  - -Risk analysis
  - -Meeting minutes

The Plan Book is a living document set that serves to guide and document our work. It is just as much for the client as it is for the development team. It often serves a client's needs long after the project has been completed.

We track and budget projects with Microsoft Project.

Our core team for Scorpion will be located in a single, open design facility that includes design resources, materials, and fabrication capabilities. This close-knit arrangement and ever-present access to design and fabrication tools facilitates highly efficient information exchange and collaboration. Since team members are continually exchanging ideas and information, formal meetings can be shorter and more effective because less time is needed to "bring everyone up to

speed. " We typically have progress meetings at the end of each week, and formal (but brief) status meetings every morning.

(3) Part III - Cost/Price Section:

(a) The offeror is required to submit either certified cost and pricing data (for proposals greater than $500,000) or information other than cost or pricing data (see FAR Subpart 15.403-5). Certified cost and pricing data shall be submitted in accordance with Table 15-2 in FAR Subpart 15.408. Sufficient cost/price information is required to allow the government to make a determination of fair and reasonable price and cost realism. The information shall be submitted at the level of detail described below and may be submitted in the offeror's own format. Examples of cost/price data are as follows:

- *Materials, including raw materials and purchased parts;*
- *Labor with engineering, manufacturing and service labor shown as separate elements;*
- *each labor category should cite hours of labor, hourly rate of pay, and total labor cost;.6*
- *Other direct cost, with supporting documentation;*
- *Costs for contractors with whom the lead contractor is teaming;*
- *Overhead cost and rates;*
- *Facilities capital cost of money (note: if facilities capital cost of money is requested,*
- *the offeror shall submit a DD Form 1861);*
- *Consultant costs, if applicable, shall include the names of the consultants, resumes with*
- *qualifications and experience, purpose on the project, number of days to be employed,*
- *and rates of pay per day;*
- *Profit or fee (if applicable).*

Please see attached Project files.

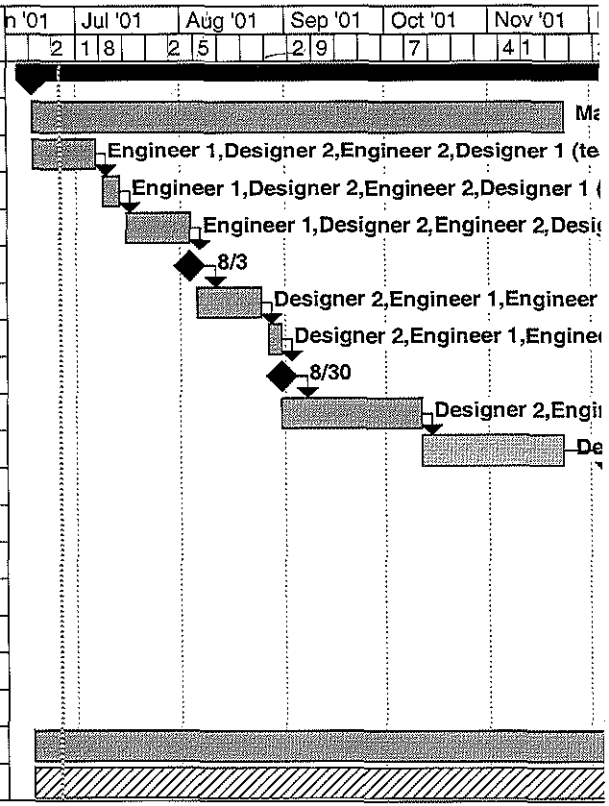
(b) Cost/Price Realism: A proposal is presumed to represent an offeror's best efforts to respond to the solicitation. Any inconsistency, whether real or apparent, between promised performance and cost/price, should be explained in the proposal. For example, if the intended use of new and innovative production techniques is the basis for an abnormally low estimate, the nature of these techniques and their impact on cost/price should be explained; or, if a corporate policy decision has been made to absorb a portion of the estimated cost, that should be stated in the proposal. Any significant inconsistency, if unexplained, raises a fundamental issue of the offeror's understanding of the nature and scope of work required and of its financial ability to perform the contract, and may be grounds for rejection of the proposal. The contractor shall supply the government with sufficient information to allow the government to assess the reasonableness of the contractor's costs/prices.

Our cost estimates may be lower than other firms for any of the following reasons:

- We typically work on commercial jobs, which we perceive to be more fast-paced and cost competitive than most military jobs. [redacted]
- We are a small team with few overhead expenses.
- We are extremely efficient at what we do.
- We comprise a highly talented and experienced team that has much experience developing products from concept to finished good within very tight time constraints.
- We scale our effort and team to meet the present task. (We retain most of our employees on a regular per-project basis. No employees that aren't working directly on this project are being paid for.)
- From experience, we have developed several unique practices that allow us to achieve highly innovative results without typically associated time and dollar expenses.

Crye Associates

ID	Task Name	Work	Duration
1	**Begin Phase I**	**5,745 hrs**	**7.75 mons**
2	Conduct market survey	40 hrs	114.29 days
3	Establish user needs	525 hrs	15 days
4	Go to field and test mil baseline g	175 hrs	5 days
5	Define/set Target Specifications	577.5 hrs	15 days
6	Target specifications chosen	0 hrs	0 days
7	Create system concepts	577.5 hrs	15 days
8	Choose 2 or 3 directions to protot	140 hrs	4 days
9	Concepts chosen	0 hrs	0 days
10	Visualize and engineer chosen cc	1,155 hrs	30 days
11	Build full prototypes of chosen dir	1,470 hrs	30 days
12	Final prototypes complete	0 hrs	0 days
13	Test in Field	350 hrs	10 days
14	Compile and sort test data	175 hrs	5 days
15	Prep and adjust prototypes	210 hrs	5 days
16	Prepare concluding reports	350 hrs	10 days
17	Present work	0 hrs	0 days
18			
19	material expences	0 hrs	145 days
20	overhead	0 hrs	7.75 mons



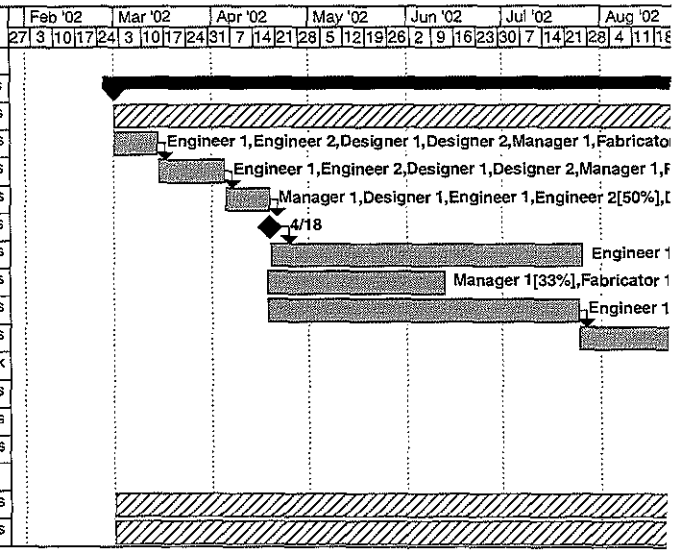
~5 months

Project: Scorpion Phase 1
Date: Tue 6/26/01

Task	Summary	Rolled Up F
Critical Task	Rolled Up Task	Split
Progress	Rolled Up Critical Task	External Ta
Milestone	Rolled Up Milestone	Project Sum

ENTIRETY OF PAGE REDACTED.

ID	Task Name	Work	Duration
1			
2	**Begin Phase II rough estimate**	**9,847.2 hrs**	**10 mons**
3	Update market survey	32 hrs	10 mons
4	Review test data, document recomendations	440 hrs	2 wks
5	Edit and refine product architecture	660 hrs	3 wks
6	Develop projected cost models	320 hrs	2 wks
7	Choose directions of focus for Phase II	0 hrs	0 mons
8	Advanced system-level design and engineering	1,304.8 hrs	3.5 mons
9	Make & Test models and mockups. Feed test result	745.6 hrs	2 mons
10	Simultaneously develop component and detail desigr	1,304.8 hrs	3.5 mons
11	Build developed prototypes	2,240 hrs	2 mons
12	Formal field tests	200 hrs	1 wk
13	Adjust prototypes	560 hrs	2 wks
14	Final prototypes complete	0 hrs	0 days
15	Prepare concluding reports	440 hrs	2 wks
16			
17	materials	0 hrs	10 mons
18	overhead (rent, utilities)	1,600 hrs	10 mons



Project: Scorpion Phase II
Date: Tue 6/26/01

Task | Milestone | Rolled Up Critical Task | Split
Critical Task | Summary | Rolled Up Milestone | External Tasks
Progress | Rolled Up Task | Rolled Up Progress | Project Summary

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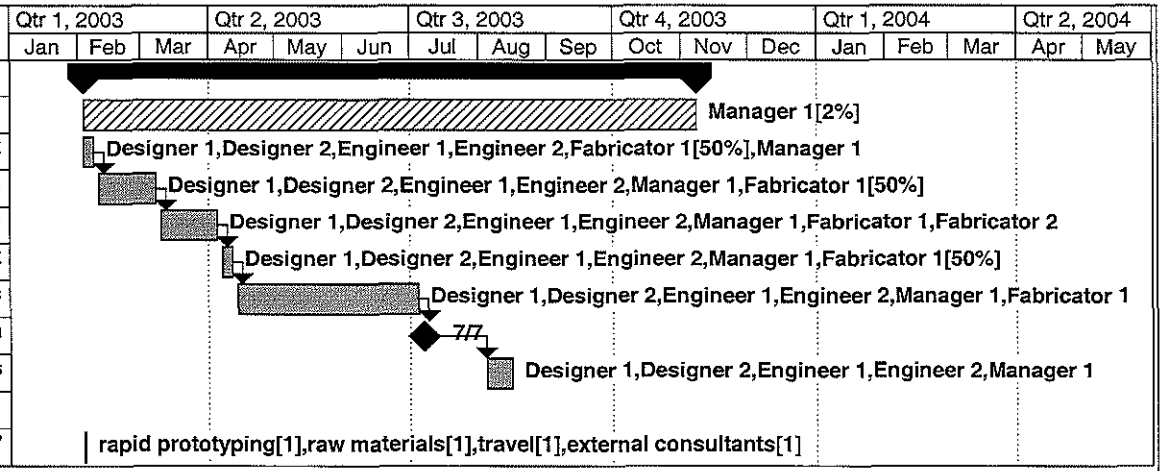
ID	Task Name	Work	Duration
1	**Begin Phase III rough estimat**	**7,032 hrs**	**10 mons?**
2	Market survey	32 hrs	10 mons
3	Refine cost estimates befo	220 hrs	1 wk
4	Refine Design For Manufa(	880 hrs	1 mon
5	Produce first articles of "pr(	1,120 hrs	1 mon
6	Verify fit and function of pa	220 hrs	1 wk
7	Build 12 finished final protc	3,360 hrs	3 mons
8	Squad-level field exercises	800 hrs	1 mon
9	concluding documentation	400 hrs	2 wks
10			
11	materials	0 hrs	1 day?



Project: Scorpion Phase III
Date: Tue 6/26/01

Task	Rolled Up Task	External Tasks	
Critical Task	Rolled Up Critical Task	Project Summary	
Progress	Rolled Up Milestone	Group By Summary	
Milestone	Rolled Up Progress		
Summary	Split		

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(4) Part IV - Past Performance Section:

Crye Associates is a relatively new company, but the collective experience we represent is substantial.

The C-410 B Mortar Ballistic Computer
Recently, Crye Associates was approached by a specialty medical computer manufacturer to produce a rugged handheld computer with military applications.

Through conversations with PM Mortars (Picatinny Arsenal), who were searching for a new mortar ballistic computer, Crye Associates rapidly conceived, designed, and prototyped a small, lightweight, long-lasting, ultra-ruggedized computer.

The computer platform was designed by starting with the user's needs and finding technology to fit those needs.

Challenge
Our unique user-based approach allowed us to perceive and define a critical problem with all portable rugged computer equipment for the military: by the time the ruggedized casing is designed, undergoes use tests, and is ready for fielding, the hardware inside is obsolete, and soon becomes unsupportable.

Solution
Crye Associates prototyped a modular and rugged computer chassis to accommodate a variety of standard-sized internals, solving the problem of hardware obsolescence.

Our results greatly pleased the PM team. However, budget revisions forced the team to reluctantly pursue a COTS solution. We are currently seeking additional development channels for this computer and refining its design.

PoGo Wireless Browser/PDA/Cell Phone
For a European client, our team recently designed, engineered and prototyped a hand-held device for the urban professional market that incorporates a wireless browser/PDA/ and cell phone – all in one small package.

We did everything from designing the actual circuit boards to determining the colors. We prototyped 12 looks-like, works-like prototypes in under 6 months. The PoGo device is still being developed in the European market.

Visit our website to view these and other projects. www.cryeassociates.com
User: crye Password: kinemax

(5) Part V - Subcontracting Plans (if applicable)

Once proposals are accepted by the technical POCs and submitted to the Contracting Office for evaluation, the Contracting Officer may decide a subcontracting plan from the offeror is required. This will be dependant upon the contract value and whether or not subcontracting possibilities exist. This requirement shall NEVER apply to small business concerns. Should a subcontracting plan be required, the offeror shall prepare it in accordance with FAR clause 52.219-9, and DFARS clause 252.219-7003 (also, for reference, see Appendix CC, AFARS Part 19.7). During the time period this BAA is in effect the small, small disadvantaged, HUBZone, and woman-owned subcontracting goal percentages will vary. Therefore, should a subcontracting plan be required the Contracting Officer will establish goals for the offereor at the time one is requested. As submitted under this

BAA, subcontracting plans will be reviewed for adherence to regulations cited in FAR Part 19 and its supplements and not necessarily for evaluation as a specific evaluation criteria. However, an offeror's refusal to submit a subcontracting plan is grounds for the government to not negotiate award of the offeror's BAA proposal.

Not Applicable. We are a veteran-owned small business

(6) Part VI - Contractor Representations and Certifications

Department of Defense CCR number	**198019221-1SNN3**
Cage Code	**1SNN3**
NAICS numbers	**541710, 541330, 541420**

We are not a manufacturer, and as such have no manufacturer certifications (ISO, etc.). Many of our members belong to professional organizations such as American Society of Mechanical engineers, American Institute of Physics, Industrial Designers Society of America, etc. We have begun the process of obtaining facility and personnel clearance but, have been advised by our local DSS office (Dss D14LI, Don Dwier [516] 794-6149) that we are prohibited from completing these processes until after contract negotiations are underway. We have worked closely with Mr. Dwier to complete all the necessary work allowed at this time. He indicates that we are in good standing to expedite these procedures because we are already registered with the CCR and we have a relatively simple organizational framework.

ADDITIONAL INFORMATION TO BE SUBMITTED WITH PROPOSALS

1. GOVERNMENT FURNISHED PROPERTY (GFP):
Government-furnished property, as defined in FAR Part 45, may be available for contractor use during the performance of a given contract awarded against this BAA.

a. The offeror should clearly request in its proposal what, if anything, it desires as GFP for the given project. It is recommended that a section in the technical or management proposal be set aside to summarize the GFP requirements.

Requested Government Furnished Property (to be returned)	Quantity
Current issue radio/com equipment (dismounted)	1 set
Current issue misc gear (flash light, watch, compass etc.)	1 set
PASGT helmet size med	2
PASGT helmet size small	2
MICH helmet	1
CVHIBS Helmet	1
AIRPAC gear	1
SARVIP vest	1
CMVS rig	1
C/B masks (Fielded and R&D)	1 of each design
GSAK kit	
1current issue m-16 A-2	1
1 current issue m-4	1
MARPAT new Marine Cammo BDU set	1 set
Manprint texts	1 set
An example of a recent Land Warrior system (can be a temporary loan)	1 system
Most other gear we will need to purchase as we will likely damage or disassemble it during the design pr	

Requested Government Furnished Services	
Limited access to testing facilities at NSC- purchased or otherwise (climatic chamber	2 visits*
Tour of and accesss to specifications of mounted COM/work interfaces like handles,s	1 day
Access to complete library of training manuals for dismounted and mounted soldiers,	full access
A point of contact to speed researching within the Army's own data. (A person likely tc	1 person

b. The offeror may request, for incorporation in the contract, a GFP delivery schedule NOT based specifically on the date of contract award.

We request that our materials budget for Phase I be provided as soon as possible so that we can begin work immediately.

2. TYPE OF CONTRACT:

Contract type may vary according to the degree and timing of the responsibility assumed by the contractor for the cost of performance and the amount and nature of the profit incentive offered to the contractor for achieving or exceeding specific standards and goals. See FAR Subpart 16.101(a). Offerors shall identify the type(s) of contract (FAR Part 16) they feel is(are) best suited to the proposed effort. An offeror's suggestion regarding suitable contract type does not obligate the government to employ the suggested contract type. The selection of the contract type is subject to negotiation.

Our experience is largely based on commercial contract jobs not government contracts. Therefore, while we are comfortable providing a Firm Fixed Price (FFP) for Phase I, we welcome input from NSC on the type of contract best suited for this kind of exploratory work.

Phase II and III could also be FFP contracts, but should remain negotiable until completion of each preceding phase to allow for more accurate cost predictions. Based on the nature of the work, we are unable to provide highly accurate cost projections for Phase II and III at this time; since the scope of Phase III is contingent upon the outcome of Phase II, and the scope of Phase II is contingent on the outcome of Phase I. For this reason, we would like to be able to recalculate cost estimates before each new phase.

APPENDIX
Sample Project Management Tools

1. Needs-metrics matrix

The following table shows the kind of needs-metrics matrix we might use to map Scorpion user needs to core functionality. In this particular example, a robot is being designed for a competition. The needs (left) are mapped to specific and quantifiable metrics (top) to provide a clear target specification for meeting each need.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
		Average time to contact ball per distance on an open playing field	Average time to contact the ball per distance and per object on a randomly obstructed playing field	Percent of goals blocked from various opponent field positions (given a straight-shot attack)	Lift angle required for robot to topple over	Access and/or replacement time for most remote parts or modules	Time to complete dissipation of available power supply	Average number of 'jerks' the robot experiences when traveling along a defined path with 'n' turns that	Number of times ball moves outside the planes that define the space of the robot per number of turns the	Instruction error rate	Number of scoring techniques	Goals scored less opponent's scores	Number of oohs and aahs heard when unveiling the robot	Robot speed	Checking account balance after the competition	Data-to-execution latency
1	Scores more than it is scored on											X				
2	Is stable during operation				X											
3	Seeks for and maintains physical contact with the ball	X							X							
4	Employs a variety of techniques for scoring										X	X				
5	Beats the opponent to the ball	X												X		
6	Prevents the opponent from scoring			X								X				
7	Moves wherever necessary to obtain the ball		X										X			
8	Appearance instills pride and boastful behavior														X	
9	Creators' wives to go to the mall without breaking the budget															
10	Out positions the opponent physically	X	X									X		X		
11	Its system is autonomous									X						
12	The power supply makes it through a match (minimum)						X									
13	Maintains physical contact with the ball		X						X							
14	Recognizes where the ball is	X	X													
15	Outthinks its opponent										X					
16	Reliably receives information from the computer									X						
17	Interprets and executes information from the computer							X								
18	The control algorithm allows the robot to move smoothly							X								
19	The robot's performance instills pride							X								
20	The robot's programming is well-organized										X					
21	Positions itself quickly	X		X												
22	Design allows it to retrieve a ball in any situation		X													
23	and robot receives data, processes it, and executes it quickly									X						X
24	The robot is modular in design					X										
25	The robot is robust				X											
26	Knows its position relative to other objects		X													

Figure 06

2. DSM: Design Structure Matrix

A DSM is a graphic data organizational tool that assists in the management of interdependent tasks, by helping to identify and group dependencies.

Each variable is listed twice, once in a row, and once in the corresponding column. Assuming variables are tasks, each task-row shows which other tasks' outputs are required to complete it. By filling in the DSM and then reordering it from least dependent tasks to most dependent tasks, groups of interdependencies become visible, understandable, and manageable. These types of matrices will be very helpful in determining how to best integrate Scorpion's highly interdependent Prevention, Protection, and Provision systems.

Figure 07: A parameter-based DSM applied to an automobile brake system. X's indicate task dependence.

Figure 08: After sequencing the parameters, low-level parameter determinations become apparent. (Black, 1990)

Parameter-Based DSM BEFORE Sequencing (Black)

		1	2	3	4	5	6	7	8	9	10	11	12	13
Customer Requirements	1	1												
Wheel Torque	2		2		X									
Pedal Mech. Advantage	3	X		3	X	X			X		X			X
System Level Parameters	4	X			4									
Rotor Diameter	5	X	X	X	X	5		X	X		X	X		X
ABS Modular Display	6		X				6			X				
Front Lining Coef. of Friction	7			X	X	X		7	X		X			X
Piston-Rear Size	8		X		X				8		X			
Caliper Compliance	9			X	X					9	X			X
Piston- Front Size	10		X		X				X		10			
Rear Lining Coef of Friction	11			X	X	X			X		X	11		X
Booster - Max. Stroke	12												12	X
Booster Reaction Ratio	13		X	X	X	X		X	X		X	X		13

Figure 07

Parameter-Based DSM AFTER Sequencing (Black)

		1	4	2	10	8	3	11	7	13	5	12	9	6
Customer_Requirements	1	1												
System_Level_Parameters	4	X	4											
Wheel Torque	2		X	2										
Piston- Front Size	10		X	X	10	X								
Piston-Rear Size	8		X	X	X	8								
Pedal Mech. Advantage	3	X	X		X	X	3			X	X			
Rear Lining Coef of Friction	11		X		X	X	X	11		X	X			
Front_Lining_Coef._of_Friction	7		X		X	X	X		7	X	X			
Booster Reaction Ratio	13		X	X	X	X	X	X	X	13	X			
Rotor Diameter	5	X	X	X	X	X	X	X	X	X	5			
Booster - Max. Stroke	12									X		12		
Caliper Compliance	9		X		X		X			X			9	
ABS Modular Display	6												X	6

Figure 08

43w 24th ST #2A new york city, ny 10010 p.212.580.2800 f.212.989.4962 www.cryeassociates.com

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01 - 03 Natick BAA

Topic: D.12. Advanced Protection and Integration Technologies and Systems

[Scorpion]

CCR Contractor # 198019221-1SNN3

Duns # 198019221

Reps & Certs

OFFEROR REPRESENTATIONS AND CERTIFICATIONS -- NON-COMMERCIAL ITEMS

Federal Acquisition Regulation (FAR) Requirements

52.204-3 -- Taxpayer Identification (Oct 1998)

(a) *Definitions.*

Common parent, as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

Taxpayer Identification Number (TIN), as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C.7701(c) and 3325(d), reporting requirements of 26 U.S.C.6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C.7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) *Taxpayer Identification Number (TIN).*

[ ] TIN: 13-4147312

[ ] TIN has been applied for.

[ ] TIN is not required because:

[ ] Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;

[ ] Offeror is an agency or instrumentality of a foreign government;

[ ] Offeror is an agency or instrumentality of the Federal Government.

(e) *Type of organization.*

[ ] Sole proprietorship;
[X] Partnership;
[ ] Corporate entity (not tax-exempt);
[ ] Corporate entity (tax-exempt);
[ ] Government entity (Federal, State, or local);
[ ] Foreign government;
[ ] International organization per 26 CFR 1.6049-4;
[ ] Other _____

(f) *Common parent.*

[X] Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.

[ ] Name and TIN of common parent:

Name _____

TIN _____

(End of Provision)

52.204-5 -- Women-Owned Business (Other Than Small Business) (May 1999)

(a) *Definition.* Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) *Representation.* [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it _____ is a women-owned business concern.

(End of Provision)

52.204-6 -- Data Universal Numbering System (DUNS) Number (Jun 1999)

(a) The offeror shall enter, in the block with its name and address on the cover page of its offer, the annotation "DUNS" followed by the DUNS number that identifies the offeror's name and address exactly as stated in the offer. The DUNS number is a nine-digit number assigned by Dun and Bradstreet Information Services.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

(1) Company name.
(2) Company address.

(3) Company telephone number.
(4) Line of business.
(5) Chief executive officer/key manager.
(6) Date the company was started.
(7) Number of people employed by the company.
(8) Company affiliation.

(c) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet home page at http://www.customerservice@dnb.com/. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@mail.dnb.com.

(End of Provision)

52.209-5 -- Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (Apr 2001)

(a)

(1) The Offeror certifies, to the best of its knowledge and belief, that --

(i) The Offeror and/or any of its Principals --

(A) Are ____ are not __X__ presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ____ have not __X__, within the three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ____ are not __X__ presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision; and

(D) Have ____ have not __X__, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(E) Are ____ are not __X__ presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

52.215-6 -- Place of Performance (Oct 1997)

(a) The offeror or respondent, in the performance of any contract resulting from this solicitation, intends__X__, does not intend ____ to use one or more plants or facilities located at a different address from the address of the offeror or respondent as indicated in this proposal or response to request for information.

(b) If the offeror or respondent checks "intends" in paragraph (a) of this provision, it shall insert in the following spaces the required information:

Place of Performance (Street Address, City, State, County, Zip Code)	Name and Address of Owner and Operator of the Plant or Facility if Other Than Offeror or Respondent
[redacted]	

(End of Provision)

52.219-1 -- Small Business Program Representations (May 2001)

(a)

(1) The North American Industry Classification System (NAICS) code for this acquisition is 541710 .

(2) The small business size standard is 500 employees.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) *Representations.*

(1) The offeror represents as part of its offer that it __X__ is, ____ is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ____ is, __X__ is not, a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ____ is, ____ is not a women-owned small business concern.

(4) [Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents as part of its offer that it ____ is, __X__ is not a veteran-owned small business concern.

(ii)

(A) The offeror, aside from the offenses enumerated in paragraphs (a)(1)(i)(A), (B), and (C) of this provision, has _____ has not __X__ within the past three years, relative to tax, labor and employment, environmental, antitrust, or consumer protection laws -

(1) Been convicted of a Federal or state felony (or has any Federal or state felony indictments currently pending against them); or

(2) Had a Federal court judgment in a civil case brought by the United States rendered against them; or

(3) Had an adverse decision by a Federal administrative law judge, board, or commission indicating a willful violation of law.

(B) If the offeror has responded affirmatively, the offeror shall provide additional information if requested by the Contracting Officer; and

(iii) The Offeror has _____has not __X__, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) *"Principals,"* for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This Certification Concerns a Matter Within the Jurisdiction of an Agency of the United States and the Making of a False, Fictitious, or Fraudulent Certification May Render the Maker Subject to Prosecution Under Section 1001, Title 18, United States Code.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of Provision)

(5) [Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.] The offeror represents as part of its offer that it ____ is, ____ is not a service-disabled veteran-owned small business concern.

(c) *Definitions.* As used in this provision --

Service-disabled veteran-owned small business concern --

(1) Means a small business concern --

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C.101(2), with a disability that is service-connected, as defined in 38 U.S.C.101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern --

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C.101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women; or, in the case of any publicly owned business, at least 51 percent of the stock of that is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) *Notice.*

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C.645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to

section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall --

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of Provision)

Alternate I (Oct 2000).

(b)

(6) [Complete only if offeror represented itself as a small business concern in paragraph (b)(1) of this provision.] The offeror represents, as part of its offer, that --

(i) It ____ is, __X__ is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR Part 126; and

(ii) It ____ is, __X__ is not a joint venture that complies with the requirements of 13 CFR Part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. [The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____ _____.] Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

Alternate II (Oct 2000).

(b)

(7) [Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.] The offeror shall check the category in which its ownership falls:

____ Black American.

____ Hispanic American.

____ Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

____ Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

____ Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

____ Individual/concern, other than one of the preceding.

52.222-21 -- Prohibition of Segregated Facilities (Feb 1999)

(a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of Clause)

52.222-22 -- Previous Contracts and Compliance Reports (Feb 1999)

The offeror represents that --

(a) It _____ has, __X__ has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) It ____ has, ____ has not filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of Provision)

52.222-25 -- Affirmative Action Compliance (Apr 1984)

The offeror represents that --

(a) It _____ has developed and has on file, _____ has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2); or

(b) It __X__ has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

(End of Provision)

52.223-13 -- Certification of Toxic Chemical Release Reporting (Oct 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that --

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C.11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C.13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: *[Check each block that is applicable.]*

__X__ (i) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C.11023(c);

__X__ (ii) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C.11023(b)(1)(A);

__X__ (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C.11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

__X__ (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

____ (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

(End of Provision)

52.230-1 -- Cost Accounting Standards Notices and Certification (July 2000)

Note: This notice does not apply to small businesses or foreign governments. This notice is in three parts, identified by Roman numerals I through III.

Offerors shall examine each part and provide the requested information in order to determine Cost Accounting Standards (CAS) requirements applicable to any resultant contract.

If the offeror is an educational institution, Part II does not apply unless the contemplated contract will be subject to full or modified CAS coverage pursuant to 48 CFR 9903.201-2(c)(5) or 9903.201-2(c)(6), respectively.

I. *Disclosure Statement* -- Cost Accounting Practices and Certification

(a) Any contract in excess of $500,000 resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR Chapter 99), except for those contracts which are exempt as specified in 48 CFR 9903.201-1.

(b) Any offeror submitting a proposal which, if accepted, will result in a contract subject to the requirements of 48 CFR Chapter 99 must, as a condition of contracting, submit a Disclosure Statement as required by 48 CFR 9903.202. When required, the Disclosure Statement must be submitted as a part of the offeror's proposal under this solicitation unless the offeror has already submitted a Disclosure Statement disclosing the practices used in connection with the pricing of this proposal. If an applicable Disclosure Statement has already been submitted, the offeror may satisfy the requirement for submission by providing the information requested in paragraph (c) of Part I of this provision.

Caution: In the absence of specific regulations or agreement, a practice disclosed in a Disclosure Statement shall not, by virtue of such disclosure, be deemed to be a proper, approved, or agreed-to practice for pricing proposals or accumulating and reporting contract performance cost data.

(c) *Check the appropriate box below:*

____ (1) *Certificate of Concurrent Submission of Disclosure Statement.* The offeror hereby certifies that, as a part of the offer, copies of the Disclosure Statement have been submitted as follows:

(i) Original and one copy to the cognizant Administrative Contracting Officer (ACO) or cognizant Federal agency official authorized to act in that capacity (Federal official), as applicable; and

(ii) One copy to the cognizant Federal auditor.

(Disclosure must be on Form No. CASB DS-1 or CASB DS-2, as applicable. Forms may be obtained from the cognizant ACO or Federal official and/or from the loose-leaf version of the Federal Acquisition Regulation.)

Date of Disclosure Statement: _____ Name and Address of Cognizant ACO or Federal Official Where Filed:

_____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the Disclosure Statement.

____ (2) *Certificate of Previously Submitted Disclosure Statement.* The offeror hereby certifies that the required Disclosure Statement was filed as follows:

Date of Disclosure Statement: _____ Name and Address of Cognizant ACO or Federal Official Where Filed:

_____

The offeror further certifies that the practices used in estimating costs in pricing this proposal are consistent with the cost accounting practices disclosed in the applicable Disclosure Statement.

____ (3) *Certificate of Monetary Exemption.* The offeror hereby certifies that the offeror, together with all divisions, subsidiaries, and affiliates under common control, did not receive net awards of negotiated prime contracts and subcontracts subject to CAS totaling more than $50 million or more in the cost accounting period immediately preceding the period in which this proposal was submitted. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

____ (4) *Certificate of Interim Exemption.* The offeror hereby certifies that

(i) the offeror first exceeded the monetary exemption for disclosure, as defined in (3) of this subsection, in the cost accounting period immediately preceding the period in which this offer was submitted and

(ii) in accordance with 48 CFR 9903.202-1, the offeror is not yet required to submit a Disclosure Statement. The offeror further certifies that if an award resulting from this proposal has not been made within 90 days after the end of that period, the offeror will immediately submit a revised certificate to the Contracting Officer, in the form specified under subparagraph (c)(1) or (c)(2) of Part I of this provision, as appropriate, to verify submission of a completed Disclosure Statement.

Caution: Offerors currently required to disclose because they were awarded a CAS-covered prime contract or subcontract of $50 million or more in the current cost accounting period may not claim this exemption (4). Further, the exemption applies only in connection with proposals submitted before expiration of the 90-day period following the cost accounting period in which the monetary exemption was exceeded.

II. *Cost Accounting Standards -- Eligibility for Modified Contract Coverage*

____ The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than $50 million in awards of CAS-covered prime contracts and subcontracts. Checking the box below shall mean that the resultant contract is subject to the Disclosure and Consistency of Cost Accounting Practices clause in lieu of the Cost Accounting Standards clause.

____ *The offeror hereby claims an exemption from the Cost Accounting Standards clause under the provisions of 48 CFR 9903.201-2(b) and certifies that the offeror is eligible for use of the Disclosure and Consistency of Cost Accounting Practices clause because during the cost accounting period immediately preceding the period in which this proposal was submitted, the offeror received less than $25 million in awards of CAS-covered prime contracts and subcontracts, or the offeror did not receive a single CAS-*

covered award exceeding $1 million. The offeror further certifies that if such status changes before an award resulting from this proposal, the offeror will advise the Contracting Officer immediately.

Caution: An offeror may not claim the above eligibility for modified contract coverage if this proposal is expected to result in the award of a CAS-covered contract of $50 million or more or if, during its current cost accounting period, the offeror has been awarded a single CAS-covered prime contract or subcontract of $50 million or more.

III. *Additional Cost Accounting Standards Applicable to Existing Contracts*

The offeror shall indicate below whether award of the contemplated contract would, in accordance with subparagraph (a)(3) of the Cost Accounting Standards clause, require a change in established cost accounting practices affecting existing contracts and subcontracts.

____ Yes ____ No

(End of Provision)

Alternate I (Apr 1996).

____ (5) *Certificate of Disclosure Statement Due Date by Educational Institution.* If the offeror is an educational institution that, under the transition provisions of 48 CFR 9903.202-1(f), is or will be required to submit a Disclosure Statement after receipt of this award, the offeror hereby certifies that (check one and complete):

____ (i) A Disclosure Statement Filing Due Date of _____ has been established with the cognizant Federal agency.

____ (ii) The Disclosure Statement will be submitted within the 6-month period ending _____ months after receipt of this award.

Name And Address Of Cognizant ACO Or Federal Official Where Disclosure Statement Is To Be Filed:

_____

52.252-1 -- Solicitation Provisions Incorporated by Reference (Feb 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

http://www.arnet.gov/far/

http://farsite.hill.af.mil

http://web1.deskbook.osd.mil/default.asp

(End of Provision)

Defense Federal Acquisition Regulation Supplement (DFARS) Requirements

252.209-7001 -- Disclosure of Ownership or Control by The Government Of A Terrorist Country (Mar 1998)

(a) *Definitions.* As used in this provision --

(1) *"Government of a terrorist country"* includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) *"Terrorist country"* means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C.App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) *"Significant interest"* means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) *Prohibition on award.* In accordance with 10 U.S.C.2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) *Disclosure.* If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include -

(1) Identification of each government holding a significant interest; and
(2) A description of the significant interest held by each government.

(End of Provision)

252.225-7000 -- Buy American Act -- Balance Of Payments Program Certificate (Sep 1999)

(a) *Definitions. "Domestic end product," "qualifying country," "qualifying country end product,"* and *"nonqualifying country end product"* have the meanings given in the Buy American Act and Balance of Payments Program clause of this solicitation.

(b) *Evaluation.* Offers will be evaluated by giving preference to domestic end products and qualifying country end products over nonqualifying country end products.

(c) *Certifications.*

(1) The Offeror certifies that --

(i) Each end product, except those listed in paragraphs (c)(2) or (3) of this provision, is a domestic end product; and

(ii) Components of unknown origin are considered to have been mined, produced, or manufactured outside the United States or a qualifying country.

(2) The Offeror certifies that the following end products are qualifying country end products:

Qualifying Country End Products

Line Item Number	Country of Origin

(List only qualifying country end products.)

(3) The Offeror certifies that the following end products are nonqualifying country end products:

Non-Qualifying Country End Products

Line Item Number	Country of Origin (If Known)

(End of Provision)

252.225-7003 -- Information For Duty-Free Entry Evaluation (Mar 1998)

(a) Does the offeror propose to furnish --

(1) A domestic end product with nonqualifying country components for which the offeror requests duty-free entry; or

(2) A foreign end product consisting of end items, components, or material of foreign origin other than those for which duty-free entry is to be accorded pursuant to the Duty-Free Entry -- Qualifying Country Supplies (End Products and Components) clause or, if applicable, the Duty-Free Entry -- Eligible End Products clause of this solicitation?

Yes ( ) No (X)

(b) If the answer in paragraph (a) is yes, answer the following questions:

(1) Are such foreign supplies now in the United States?

Yes ( ) No ( )

(2) Has the duty on such foreign supplies been paid?

Yes ( ) No ( )

(3) If the answer to paragraph (b)(2) is no, what amount is included in the offer to cover such duty? $_____

(c) If the duty has not been paid, the Government may elect to make award on a duty-free basis. If so, the offered price will be reduced in the contract award by the amount specified in paragraph (b)(3). The Offeror agrees to identify, at the request of the Contracting Officer, the foreign supplies which are subject to duty-free entry.

(End of Provision)

Alternate I (Mar 1998).

(a) Does the offeror propose to furnish a U.S. made end product with nonqualifying country components for which the offeror requests duty-free entry?

Yes ( ) No (X)

252.227-7017 -- Identification And Assertion Of Use, Release, Or Disclosure Restrictions (Jun 1995)

(a) The terms used in this provision are defined in following clause or clauses contained in this solicitation --

(1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data -- Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software -- Small Business Innovative Research (SBIR) Program clause.

(2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software -- Small Business Innovative Research (SBIR) Program clause.

(b) The identification and assertion requirements in this provision apply only to technical data, including computer software documentation, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification and identification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

(c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.

(d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers, shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

• Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

• The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data			
Computer Software			**Name of Person**
to be Furnished	**Basis for**	**Asserted Rights**	**Asserting**
With Restrictions*	**Assertion****	**Category*****	**Restrictions********
Multiple garment components	Designs were privately	Government usage is	Caleb Crye
(see pages 20-21)	funded, and are patent	restricted.	
	pending	(see pages 20-21)	

* For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such item, component, or process. For computer software or computer software documentation identify the software or documentation.

** Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development

252.247-7022 -- Representation Of Extent Of Transportation By Sea (Aug 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term "supplies" is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) *Representation.* The Offeror represents that it --

____ Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

__X__ Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

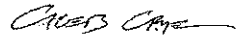
(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of Provision)

Certification

The above information is correct and true to the best of my belief and understanding.

Date: 20 September, 2001

Signature of Company Representative: 

Printed Name and Title: Caleb Crye, Director

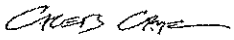
Company Name: Crye Associates

refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

*** Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

**** Corporation, individual, or other person, as appropriate.

***** Enter "none" when all data or software will be submitted without restrictions.

Date	20 September, 2001
Printed Name and Title	Caleb Crye
	Director
Signature	

(End of identification and assertion)

(e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.

(f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

(End of Provision)

252.227-7028 -- Technical Data Or Computer Software Previously Delivered To The Government (Jun 1995)

The Offeror shall attach to its offer an identification of all documents or other media incorporating technical data or computer software it intends to deliver under this contract with other than unlimited rights that are identical or substantially similar to documents or other media that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The attachment shall identify --

(a) The contract number under which the data or software were produced;

(b) The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and

(c) Any limitations on the Government's rights to use or disclose the data or software, including, when applicable, identification of the earliest date the limitations expire.

(End of Provision)

Technical Data to be furnished with restrictions	Basis for assertion	Asserted rights category	Name of person asserting restrictions
Multi-layer load/data transfer connectors. Allows versatile layering and retention of various garments and equipment.	Privately funded development / patent pending	Gov. usage is restricted to testing, evaluation, and direct cooperative development with Crye Associates. No manufacture or further development of these inventions is granted for any entity other than an agent of The United States DOD in direct partnership with Crye Associates or Crye Associates alone. The government is disallowed the right to have any entity other than Crye Associates review, examine, or develop these inventions, without the express written consent of Crye Associates. As such, no disclosure or transference of information regarding these inventions may be made to any commercial agency without written consent from Crye Associates.	Caleb Crye
Rapid donning/doffing Chem/Bio sealed boot	Privately funded development / patent pending	"Same as above"	Caleb Crye
Solid human waste management system	Privately funded	"Same as above"	Caleb Crye

for Chem/Bio situations	development / patent pending		
Self-opening clothing vent	Privately funded development / patent pending	"Same as above"	Caleb Crye
Integrated/removable joint protection	Privately funded development / patent pending	"Same as above"	Caleb Crye
Novel camouflaging technologies	Privately funded development / patent pending	"Same as above"	Caleb Crye
Modular dual load carrying pack design	Privately funded development / patent pending	"Same as above"	Caleb Crye
Rapid donning Chem/Bio protection method	Privately funded development / patent pending	"Same as above"	Caleb Crye
Integrated body armor and load carriage/data chassis with heat management system, novel armoring methods, and versatile sizing methods	Privately funded development / patent pending	"Same as above"	Caleb Crye
Fatigue reducing joint supports	Privately funded development / patent pending	"Same as above"	Caleb Crye